Exercise- Streams Processing

You are tasked with analyzing sales data for a retail company. The sales data is stored in a collection of Sale objects, each representing a single sale transaction. Each Sale object contains information such as the product name, sale amount, customer ID, and date of sale. You need to perform various operations on this data using Java 8 Stream API.

i) Filter out all sales that occurred after a certain date, say January 1, 2023.
ii) Map the sales to their corresponding product names.
iii) Calculate the total sales amount for a specific product, e.g., "Smartphone".
iv) Sort the sales by sale amount in descending order.
v) Collect the distinct customer IDs from all sales.
vi) Group the sales by product name.
vii) Filter the sales to include only those with a sale amount greater than $100, then calculate the total sales amount for those sales.
viii) Perform one of the previous operations using parallel streams for potentially improved performance.
ix) Map the sales to a new object SaleSummary, which contains the product name and the total sales amount for that product.
x) Calculate the average sales amount across all sales.